24. A method as recited in claim 23 wherein said catalyst comprises said zeolite and a low acid refractory oxide binder which is essentially free of aluminum.

B4 25. A method as recited in claim 24, wherein the zeolite content of said catalyst, on a dried basis, is below 50 weight percent of said catalyst.

REMARKS

Independent claim 1 has been amended so that preparing step (a) includes the two steps of first mixing a zeolite and an acid silica sol to form a mixture that has a pH below 7, and subsequently adding an amine compound to the mixture to adjust the pH upwardly to a value above 8. These additional limitations are those of dependent claim 2 and further include the limitation of the use of an acid silica sol and an acidic pH in the first mixture. Support for these limitations can be found at page 3, lines 13-14. Dependent claims 2 and 6 have been canceled, and dependent claims 3, 4, 5, 7, and 8 are amended as required to reflect the proper dependencies and references to the proper antecedents.

New claims 17 through 25 have been added to the specification. Support for independent claim 17 is found in the specification at page 3, line 30 to page 4, line 13. Support for dependent claim 18 is found in the specification at page 4, lines 14-22. Support for dependent claim 19 is found in the specification at page 4, line 23 through page 5, line 11. Support for dependent claim 20 is found in the specification at page 7, lines 3-11. Support for dependent claim 21 is found at page 5, lines 12-21. Support for dependent claim 22 is found at page 3, lines 13-25. Support for the additional method steps of dependent claim 23 is found in original claim 1 and throughout the specification. Support for dependent claim 24 is found in the specification at page 3, lines 3-6. And, support for dependent claim 25 is found at page 4, lines 23-27.

Rejection of Claims 1-8, 11, 15 and 16 under 35 USC § 103(a) Over U.S. Patent 3,645,914

Claims 1-8, 11, 15 and 16 have been rejected under 35 USC § 103 as being unpatentable over the Rosinski et al. patent (U.S. 3,645,914). This rejection is traversed. Reconsideration and withdrawal of this rejection are respectfully requested in view of the following remarks.

It is submitted that the amendments to independent claim 1 are such as to provide a claimed method that is patentably distinct over the Rosinski et al. reference. The Rosinski et al. reference discloses a method of rehydrating certain inorganic metal oxides that normally could not be used as a catalyst binder or support because of the difficulty in manipulating such

inorganic metal oxides into a workable extrusion material. *See* column 1, line 64 - column 2, line 4 and column 2, lines 53-56. Rosinski et al. further teach that their method preferably rehydrates the inorganic oxide prior to mixing the resulting rehydrated inorganic metal oxide that is in extrudable form with zeolite. *See* column 3, lines 45-47, 61-65.

Rosinski et al. do not recognize the importance in the manufacture of catalyst particles having enhanced crush strength and comprising zeolite and metal oxide binder of first forming a homogeneous mixture of at least a zeolite and an acid silica sol which has a pH of less than 7 followed thereafter by adding an amine compound to the homogeneous mixture to raise the pH above 8. In fact, Rosinski et al. teach that it is less preferred to perform rehydration of a mixture of zeolite and inorganic oxide than to rehydrate the inorganic oxide prior to mixing the rehydrated metal oxide with zeolite. *See* column 3, lines 60-68.

In Applicants' claimed method, a first homogeneous mixture of zeolite and an acid silica sol having a pH of less than 7 is first formed prior to the addition of an amine compound to thereby raise the pH to above 8. Referring to Applicants' example, it is shown that an improvement in the crush strength of the final catalyst particle is achieved when ammonia is added to the starting zeolite-containing mixture that includes an acidic silica. This benefit is not recognized by Rosinski et al. nor is Applicants' two-step method for making an extrudable mass that ultimately provides for a catalyst particle having an enhanced crush strength disclosed by Rosinski et al.

In view of the above comments, Applicants respectfully suggest that the now pending claims are patentably distinct over the Rosinski et al. reference. Therefore, Applicants respectfully request the withdrawal of the Examiner's rejection and allowance of the claims.

Rejection of Claims 9 and 10 under 35 USC § 103 Over U.S. Patent 3,645,914 in View of U.S. Patent 4,503,023

The Examiner has rejected claims 9 and 10 as being obvious over Rosinski et al. (U.S. Patent 3,645,914) in view of Breck et al. (U.S. Patent 4,503,023). This rejection is traversed. Reconsideration and withdrawal of this rejection are respectfully requested in view of the following remarks.

The Examiner has combined the secondary reference of Breck et al. with the primary reference of Rosinski et al. to supply the missing teaching of zeolite dealumination by the use of a fluorosilicate salt. Applicants, however, submit that the Examiner's obviousness rejection of claims 9 and 10 has now been rendered moot as a result of the amendments to dependent

claim 1 as discussed above. Therefore, Applicants respectfully request withdrawal of the Examiner's rejection of claims 9 and 10 and the allowance of such claims.

Rejection of claims 12-14 under 35 USC § 103 over U.S. Patent 3,645,914 in view of U.S. Patent 5,053,374

The Examiner has rejected claims 12-14 as being obvious over Rosinski et al. in view of Absil et al. This rejection is traversed. Reconsideration and withdrawal of this rejection are respectfully requested.

The Examiner has combined the Rosinski et al. reference with the Absil reference using the Absil et al. reference to supply the missing limitation of use of the particular catalyst as described in the Rosinski et al. reference. In view of the above remarks concerning the modified claims, it is respectfully asserted that this rejection has been rendered moot; therefore, Applicants respectfully request the withdrawal and allowance of claims 12-14.

Conclusion

In view of the above remarks and amendments to the claims, it is respectfully asserted that claims 1, 3-5, and 7-25 are patentably distinguishable over the cited prior art. Therefore, Applicants respectfully request the early allowance of these claims.

Respectfully submitted,

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APPENDIX

1. (Amended) A method for preparing a catalyst comprising a zeolite and a low acidity refractory oxide binder which is essentially free of alumina comprising:

(a) preparing an extrudable mass [comprising a substantially homogenous mixture of zeolite, water, a source of the low acidity refractory oxide binder present which comprises an acid sol, and an amine compound,] by first mixing a zeolite and an acid silica sol into a first homogeneous mixture having a pH below 7 and subsequently adding an amine compound to the first homogeneous mixture such that the pH of the resulting second mixture has a value of above 8,

(b) extruding the extrudable mass resulting from step (a),

(c) drying the extrudate resulting from step (b); and,

(d) calcining the dried extrudate resulting from step (c) thereby providing said catalyst.

3. (Amended) The method of claim [2] 1 wherein the amine compound is added in step (a) within 20 minutes of performing step (b).

4. (Amended) The method of claim [1] 3 wherein the zeolite content, on a dry basis, is below 50 wt% as calculated on the finished catalyst and wherein [the low acidity refractory oxide source used to prepare the extrudable mass in step (a)] further included in said first homogenous mixture is [comprises] a powder of [the] a low [oxide] acidity refractory [source] oxide binder material.

5. (Amended) The method of claim [1] 4 wherein the low acidity refractory oxide binder material is silica.

7. (Amended) The method of claim [1] 5 wherein the amine compound is ammonia.

8. (Amended) The method of claim [1] 7 wherein the zeolite is selected from the group consisting of ZSM-5, ZSM-12, ZSM-22, ZSM-23, and SZZ-32.